

Amendments to the Claims

This listing of claims will replace the originally filed claims in the application.

Listing of Claims:

Claims 1 – 22 (cancelled)

Claim 23 (new): A method for producing hydrogen by Pressure Swing Adsorption in a PSA unit, comprising;

- introducing a feedstock gas containing hydrogen into said PSA unit at a first pressure, wherein said PSA unit produces a waste gas stream,
- compressing said waste gas stream to a second pressure, in a first compressor, thereby producing a compressed waste gas stream, wherein said second pressure is lower than said first pressure,
- introducing said compressed waste gas stream into a fuel gas mixture distribution network, wherein said fuel gas mixture distribution network contains a fuel gas mixture comprising hydrogen, thereby producing a blended stream;
- removing a portion of said blended stream from said fuel gas mixture distribution network,
- compressing said blended stream portion to a third pressure, in a second compressor, thereby producing a compressed blended stream portion, wherein said third pressure is equal to or greater than said first pressure, and
- introducing said compressed blended stream portion into said PSA unit.

Claim 24 (new): The method of claim 23, further comprising introducing said compressed blended stream portion into said feedstock gas, prior to introduction into said PSA unit.

Claim 25 (new): The method of claim 23, wherein said first pressure is between about 15 and 45 bar and wherein said second pressure is between about 3 and 8 bar.

Claim 26 (new): The method of claim 23, wherein said waste gas stream is extracted from the pressure swing adsorption unit at a fourth pressure, and wherein said fourth pressure is between about 1.1 and 2 bar.

Claim 27 (new): The method of claim 23, wherein said fuel gas mixture contains at least about 30% hydrogen.

Claim 28 (new): The method of claim 23, wherein said fuel gas mixture contains between about 35 and 50% hydrogen.

Claim 29 (new): An installation for implementing the method of claim 1, comprising:

- a) at least one feedstock gas supply pipe;
- b) at least one line of a fuel gas mixture distribution network;
- c) at least one PSA unit for separating gases by adsorption having one inlet connected to the feedstock gas pipe, a production gas outlet and at least one waste gas outlet;
- d) said first compressor connecting said waste gas outlet to said fuel gas mixture distribution network line; and
- e) said second compressor connecting said fuel gas mixture distribution network line to said inlet of the PSA unit.

Claim 30 (new): The installation of claim 29, wherein said second compressor is placed in a pipe connecting said fuel gas mixture distribution network line to the feedstock gas pipe.

Claim 31 (new): The installation of claim 29, wherein said second compressor is connected to said fuel gas mixture distribution network line upstream of said fuel gas mixture distribution network connection to the first compressor.

Claim 32 (new): The installation of claim 29, wherein said first and said second compressors use common subassemblies.

Claim 33 (new): The installation of claim 32, wherein said first and said second compressors have a common driveline.